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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,770	02/02/2001	Yuji Isoda	Q62998	6816

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EXAMINER
LEE, SHUN K

ART UNIT	PAPER NUMBER
2878	

DATE MAILED: 04/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Offic Action Summary	Application N .	Applicant(s)	
	09/773,770	ISODA ET AL.	
	Examiner	Art Unit	
	Shun Lee	2878	

-- The MAILING DATE of this communication appears n the c ver sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-14 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-14 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 20 February 2001 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claims 5 and 14 are objected to because of the following informalities:

(a) in claim 5, " for each pixel" on pg. 15, line 21 should probably be deleted;

(b) in claim 14, "a radiation image storage panel" on pg. 18, lines 17-18 should probably be --said radiation image storage panel--; and

(c) in claim 14, " for each pixel" on pg. 18, lines 15 and 26 should probably be deleted.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-3 and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Tecotzky *et al.* (US 5,138,171).

In regard to claims **1**, **3**, **7**, and **9**, Sieber *et al.* disclose a method comprises the steps of:

(a) applying (column 5, lines 1-25) a target radiation to a means (*e.g.*, dosimeter) containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I): $BaGd_2$: yTb, zSm, in which y and z are numbers satisfying the conditions of $0<y\leq 0.1$ and $0<z\leq 0.1$, respectively (column 3, line 25 to column 4, line 18); and

(b) measuring (column 5, lines 25-30) a strength of a third wavelength (*e.g.*, green light at about 550 nm; Fig. 3) emitted by the phosphor.

The method of Sieber *et al.* lacks measuring a variation per unit time of the strength. Tecotzky *et al.* teach (column 7, lines 32-66) to measure the phosphor emission intensity up to the time of a factor of 1/e decrease in intensity (*i.e.*, variation per unit time of the strength) in order to determine total amount of stored energy. Therefore it would have been obvious to one having ordinary skill in the art to measure a variation per unit time (*e.g.*, time at 1/e) of the strength in the method of Sieber *et al.*, in order to determine total amount of stored energy as taught by Tecotzky *et al.*

In regard to claim **2** (which is dependent on claim 1) and claim **8** (which is dependent on claim 7), Sieber *et al.* also disclose (column 5, lines 1-5) that the means (*e.g.*, dosimeter) is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

In regard to claims **5** and **6**, Sieber *et al.* disclose a method of producing a radiation image which comprises the steps of:

(a) applying (column 5, lines 1-25) a radiation having passed through a target or having been radiated by a target onto a radiation image storage panel containing a layer of terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I): $BaGd_2$: yTb, zSm, in which y and z are numbers satisfying the conditions of $0<y\leq0.1$ and $0<z\leq0.1$, respectively (column 3, line 25 to column 4, line 18);

(b) measuring a strength of a third wavelength (*e.g.*, green light at about 550 nm; Fig. 3) emitted by the phosphor.

(c) determining (column 5, lines 25-30) a strength of a third wavelength (*e.g.*, green light at about 550 nm; Fig. 3) emitted by the phosphor in each pixel which is imaginarily set on the storage panel, to obtain two-dimensional image data; and

(d) producing (column 5, lines 30-36) a radiation image from the obtained image data.

The method of Sieber *et al.* lacks measuring a variation per unit time of the strength. Tecotzky *et al.* teach (column 7, lines 32-66) to measure the phosphor emission intensity up to the time of a factor of 1/e decrease in intensity (*i.e.*, variation per unit time of the strength) in order to determine total amount of stored energy. Therefore it would have been obvious to one having ordinary skill in the art to measure a variation per unit time (*e.g.*, time at 1/e) of the strength in the method of Sieber *et al.*, in order to determine total amount of stored energy as taught by Tecotzky *et al.*

5. Claims 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Tecotzky *et al.* (US 5,138,171) as applied to claims 1 and 7 above, and further in view of Kastner *et al.* (US 3,412,248).

In regard to claim **4** (which is dependent on claim 1) and claim **10** (which is dependent on claim 7), Sieber *et al.* also disclose (column 1, lines 29-36; column 5, lines 37-39) the radiation is ionizing radiation such as X-rays or Gamma rays or ultraviolet radiation. The method of Sieber *et al.* lacks the step of preparing a calibration curve by applying a standard target radiation (*e.g.*, ultraviolet rays) in a known dose. Calibration is well known in the art. For example, Tecotzky *et al.* teach (column 8, lines 37-41) to obtain the emission intensity per röntgen dose by dividing the measured emission intensity by the applied röntgen dose. As another example, Kastner *et al.* teach (column 3, lines 45-53) that calibration charts are made for exposure of the dosimeter to known amounts of radiation in order to give measurement of the radiation to which the dosimeter is exposed. Therefore it would have been obvious to one having ordinary skill in the art to apply a standard target radiation (*e.g.*, ultraviolet rays) in a known dose in the method of Sieber *et al.*, in order to prepare a calibration curve so as to obtain measurements of the radiation to which the means (*e.g.*, dosimeter) is exposed.

6. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sieber *et al.* (US 5,391,884) in view of Dewaele (US 5,832,055) and Arakawa (US 5,051,589).

In regard to claims **11** and **13**, Sieber *et al.* disclose a method comprising the steps of:

(a) applying (column 5, lines 1-25) a target radiation to a dosimeter containing a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I): $BaGd_2$: yTb, zSm, in which y and z are numbers satisfying the conditions of $0<y\leq 0.1$ and $0<z\leq 0.1$, respectively (column 3, line 25 to column 4, line 18), so as to cause variation of atomic valency for the terbium and samarium;

(b) applying (column 5, lines 25-30) stimulating radiation (*e.g.*, ultraviolet rays) to the dosimeter to which the target radiation has been applied; and

(c) measuring (column 5, lines 25-30) an emission by the phosphor to which the stimulating radiation have been applied after application of the target radiation.

The method of Sieber *et al.* lacks a step of comparing the emission to an initial emission obtained by application of ultraviolet rays before the application of the target radiation and that measuring the emission is a measurement of a green light strength and a red light strength. Dewaele teach (column 6, lines 22-26) to determine a calibration matrix (which is required to correct for defects in a stimulable phosphor sheet; column 2, lines 5-36; column 3, lines 36-53) before every exposure for extreme accuracy. Sieber *et al.* also disclose (column 1, lines 29-36; column 5, lines 37-39) that the radiation is ionizing radiation such as X-rays or Gamma rays or ultraviolet radiation and (column 6, lines 36-42) that a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor can be employed by their prompt emission. Arakawa teaches (column 3, line 62 to

column 4, line 2) that a single stimulable phosphor sheet capable of emitting light having different wavelengths allow novel energy subtracting processes. Therefore it would have been obvious to one having ordinary skill in the art to compare the emission to an initial emission obtained by application of ultraviolet rays before the application of the target radiation and that measuring the emission is a measurement of a green light strength and a red light strength in the method of Sieber *et al.*, in order to correct for defects in the stimulable phosphor sheet and to perform energy subtraction.

In regard to claim **12** which is dependent on claim 11, Sieber *et al.* also disclose (column 5, lines 1-5) that the dosimeter is in the form of a sheet which comprises a support and a phosphor layer containing the phosphor.

In regard to claim **14**, Sieber *et al.* disclose a method of producing a radiation image which comprises the steps of:

(a) applying (column 5, lines 1-25) a radiation having passed through a target or having been radiated by a target onto a radiation image storage panel containing a layer of a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor which is composed of an oxygen atom and a composition of the formula (I): $BaGd_2$: yTb, zSm, in which y and z are numbers satisfying the conditions of $0<y\leq0.1$ and $0<z\leq0.1$, respectively (column 3, line 25 to column 4, line 18), so as to cause variation of atomic valency for the terbium and samarium in each pixel which is imaginarily set on the storage panel;

(b) applying (column 5, lines 25-30) stimulating radiation (*e.g.*, ultraviolet rays) to the storage panel to which the target radiation has been applied;

(c) determining (column 5, lines 25-30) in each pixel an emission by the phosphor to which the stimulating radiation have been applied after application of the target radiation, to obtain two-dimensional image data; and

(d) processing (column 5, lines 30-36) the two-dimensional image data for producing a radiation image from the obtained image data.

The method of Sieber *et al.* lacks a step of comparing the emission to an initial emission obtained by application of ultraviolet rays before the application of the target radiation and that measuring the emission is a measurement of a green light strength and a red light strength. Dewaele teach (column 6, lines 22-26) to determine a calibration matrix (which is required to correct for defects in a stimulable phosphor sheet; column 2, lines 5-36; column 3, lines 36-53) before every exposure for extreme accuracy. Sieber *et al.* also disclose (column 1, lines 29-36; column 5, lines 37-39) that the radiation is ionizing radiation such as X-rays or Gamma rays or ultraviolet radiation and (column 6, lines 36-42) that a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor can be employed by their prompt emission. Arakawa teaches (column 3, line 62 to column 4, line 2) that a single stimulable phosphor sheet capable of emitting light having different wavelengths allow novel energy subtracting processes. Therefore it would have been obvious to one having ordinary skill in the art to compare the emission to an initial emission obtained by application of ultraviolet rays before the application of the target radiation and that measuring the emission is a measurement of a green light strength and a red light strength in the method of Sieber *et al.*, in order to correct for defects in the stimulable phosphor sheet and to perform energy subtraction.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6,315,924 (Isoda) discloses a terbium-samarium co-activated alkaline earth metal rare earth oxide phosphor.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shun Lee whose telephone number is (703) 308-4860. The examiner can normally be reached on Tuesday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (703) 308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

CONSTANTINE HANNAHER
PRIMARY EXAMINER
GROUP ART UNIT 2878

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April 16, 2002